Next Flex - Flexible Hybrid Electronics Manufacturing Innovation Institute

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Abstract

In August 2015, the Department of Defense announced a $171M Cooperative Agreement with FlexTech Alliance to establish a Flexible Hybrid Electronics (FHE) Manufacturing Innovation Institute, subsequently named NextFlex. Based in San Jose, CA, the mission of NextFlex is to catalyze a domestic manufacturing ecosystem in FHE, with an initial focus in human performance monitoring/wearable medical devices, structural health monitoring, wideband array antennas, and soft robotics. The presentation will emphasize NextFlex's five manufacturing focus areas, which include device integration & packaging, materials, printed flexible components & microfluidics, modeling & test, and standards, testing, and reliability.

Established as a public-private partnership, NextFlex brings together resources from the federal government, state and local governments, companies, universities, and non-profit entities to enable state of the art manufacturing technology for areas critical to both the military and commercial sectors in the United States. The Institute will execute project calls in which its company and university members partner to advance the technology and manufacturing readiness levels (TRLs and MRLs) related to its mission. With a TRL/MRL entry point of 4, NextFlex aims to leverage the R&D investment at federal labs, universities, and companies by maturing select technologies to TRL/MRL 7, at which point they are commercially viable. NextFlex also includes an education and workforce development initiative, with goals of training and retraining a domestic workforce in FHE manufacturing, which includes K-12 STEM outreach efforts, the development of curricula in 2-yr, 4-yr, and graduate programs, and tools for companies to retrain their existing workforce. NextFlex is also standing-up a hub facility in San Jose, CA, which will provide members and non-members access to state-of-the-art FHE manufacturing and characterization facilities as well as the opportunity for prototyping or low-volume manufacturing services.

The first NextFlex projects are expected to be awarded in early 2016 and will be discussed during the presentation. Approx. $5M will address manufacturing challenges related to the packaging and integration of sensors for personal health and asset monitoring devices. Each project is expected to bring together an industrial-academic team, which will provide at least 1:1 cost share for the DoD funds. An update will also be provided on the Institute's Education & Workforce Development Initiative and on the status of prototyping and low-volume manufacturing hub. Finally, the NextFlex roadmap process will be discussed, with a description of how NextFlex's investment strategy is determined, including upcoming project call opportunities.